

Claims

What is claimed is:

- 1 1. A method for comprising:
 - 2 receiving a data frame at a first communications protocol software module;
 - 3 allocating a memory buffer in which to store at least some portion of the data frame from
 - 4 a pool of available memory buffers;
 - 5 storing the at least some portion of the data frame in the memory buffer;
 - 6 providing at least one pointer to the memory buffer to the first communications protocol
 - 7 software module, the first communications protocol software module accessing the at
 - 8 least some portion of the data frame in the memory buffer pointed to by the pointer to
 - 9 process the data frame;
 - 10 transferring control of processing the data frame from the first communications protocol
 - 11 software module to a second communications protocol software module; and
 - 12 providing the pointer to the memory buffer to the second communications protocol
 - 13 software module, the second communications protocol software module accessing the at
 - 14 least some portion of data frame in the memory buffer pointed to by the pointer to
 - 15 process the data frame.
- 1 2. The method of claim 1, wherein allocating a memory buffer in which to store the at
- 2 least some portion of the data frame comprises allocating a memory buffer from a pool of
- 3 available memory buffers in which to store the at least some portion of the data frame.

1 3. The method of claim 1, wherein providing at least one pointer to the memory buffer to
2 the first communications protocol software module, the first communications protocol
3 software module accessing the data frame in the memory buffer pointed to by the pointer
4 to process the data frame, comprises providing a first pointer to a beginning of the
5 memory buffer and a second pointer to an ending of the memory buffer.

1 4. The method of claim 3, further providing a length of the memory buffer to the first
2 communications protocol module.

1 5. The method of claim 1, further comprising returning the memory buffer to the pool of
2 available memory buffers when processing of the data frame is completed.

1 6. The method of claim 5, wherein returning the memory buffer to the pool of available
2 memory buffers when processing of the data frame is completed, comprises inserting the
3 pointer to the memory buffer in to a linked list of available memory buffers.

1 7. The method of claim 1, further comprising:
2 allocating a second memory buffer from a pool of available memory buffers in which to
3 store at least some portion of the data frame, as needed for the communications protocol
4 software module to process the data frame;
5 storing at least some portion of the data frame in the second memory buffer; and
6 providing at least one pointer to the second memory buffer to the communications
7 protocol software module, the communications protocol software module accessing the at

8 least some portion of the data frame in the memory buffer pointed to by the pointer to
9 process the data frame.

1 8. A apparatus comprising:

2 means for receiving a data frame at a first communications protocol software module;

3 means for allocating a memory buffer in which to store at least some portion of the data
4 frame from a pool of available memory buffers;

5 means for storing the at least some portion of the data frame in the memory buffer;

6 means for providing at least one pointer to the memory buffer to the first communications
7 protocol software module, the first communications protocol software module accessing
8 the at least some portion of the data frame in the memory buffer pointed to by the pointer
9 to process the data frame;

10 means for transferring control of processing the data frame from the first communications
11 protocol software module to a second communications protocol software module; and

12 means for providing the pointer to the memory buffer to the second communications

13 protocol software module, the second communications protocol software module

14 accessing the at least some portion of data frame in the memory buffer pointed to by the
15 pointer to process the data frame.

1 9. The apparatus of claim 8, wherein the means for allocating a memory buffer in which

2 to store the at least some portion of the data frame comprises means for allocating a

3 memory buffer from a pool of available memory buffers in which to store the at least

4 some portion of the data frame.

1 10. The apparatus of claim 8, wherein the means for providing at least one pointer to the
2 memory buffer to the first communications protocol software module, the first
3 communications protocol software module accessing the data frame in the memory buffer
4 pointed to by the pointer to process the data frame, comprises means for providing a first
5 pointer to a beginning of the memory buffer and a second pointer to an ending of the
6 memory buffer.

1 11. The apparatus of claim 10, further providing a length of the memory buffer to the
2 first communications protocol module.

1 12. The apparatus of claim 8, further comprising means for returning the memory buffer
2 to the pool of available memory buffers when processing of the data frame is completed.

1 13. The apparatus of claim 12, wherein the means for returning the memory buffer to the
2 pool of available memory buffers when processing of the data frame is completed,
3 comprises means for inserting the pointer to the memory buffer in to a linked list of
4 available memory buffers.

1 14. The apparatus of claim 8, further comprising:
2 means for allocating a second memory buffer from a pool of available memory buffers in
3 which to store at least some portion of the data frame, as needed for the communications
4 protocol software module to process the data frame;

5 means for storing at least some portion of the data frame in the second memory buffer;
6 and
7 means for providing at least one pointer to the second memory buffer to the
8 communications protocol software module, the communications protocol software
9 module accessing the at least some portion of the data frame in the memory buffer
10 pointed to by the pointer to process the data frame.

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2 15. An article of manufacture, comprising:
3 a machine accessible medium, the machine accessible medium providing instructions,
4 that when executed by a machine, cause the machine to:
5 receive a data frame at a first communications protocol software module;
6 allocate a memory buffer in which to store at least some portion of the data frame from a
7 pool of available memory buffers;
8 store the at least some portion of the data frame in the memory buffer;
9 provide at least one pointer to the memory buffer to the first communications protocol
10 software module, the first communications protocol software module accessing the at
11 least some portion of the data frame in the memory buffer pointed to by the pointer to
12 process the data frame;
13 transfer control of processing the data frame from the first communications protocol
14 software module to a second communications protocol software module; and
15 provide the pointer to the memory buffer to the second communications protocol
16 software module, the second communications protocol software module accessing the at

17 least some portion of data frame in the memory buffer pointed to by the pointer to
18 process the data frame.

1 16. The article of manufacture of claim 15, wherein the machine readable instructions,
2 that when executed by a machine, cause the machine to allocate a memory buffer in
3 which to store the at least some portion of the data frame, cause the machine to allocate a
4 memory buffer from a pool of available memory buffers in which to store the at least
5 some portion of the data frame.

1 17. The article of manufacture of claim 15, wherein the machine readable instructions,
2 that when executed by a machine, cause the machine to provide at least one pointer to the
3 memory buffer to the first communications protocol software module, the first
4 communications protocol software module accessing the data frame in the memory buffer
5 pointed to by the pointer to process the data frame, cause the machine to provide a first
6 pointer to a beginning of the memory buffer and a second pointer to an ending of the
7 memory buffer.

1 18. The article of manufacture of claim 17, further comprising machine readable
2 instructions, that when executed by a machine, cause the machine to provide a length of
3 the memory buffer to the first communications protocol module.

1 19. The article of manufacture of claim 15, further comprising machine readable
2 instructions, that when executed by a machine, cause the machine to return the memory

21. The article of manufacture of claim 15, further comprising machine readable instructions, that when executed by a machine, cause the machine to:

allocate a second memory buffer from a pool of available memory buffers in which to store at least some portion of the data frame, as needed for the communications protocol

5 software module to process the data frame;

store at least some portion of the data frame in the second memory buffer; and

provide at least one pointer to the second memory buffer to the communications protocol software module, the communications protocol software module accessing the at least some portion of the data frame in the memory buffer pointed to by the pointer to process

10 the data frame.